

Wall with supporting elements

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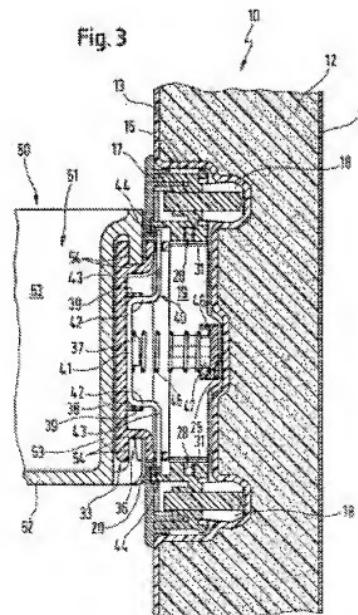
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- WO9321487 (A1)
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Abstract of EP 1030144 (A2)

The holder element has an outer cladding, a thermally insulating intermediate layer and an inner cladding on which holding elements are mounted for storage containers, shelves or similar. The holding element (33) is movable in a holder (17) between two holding positions fixed by latching elements (31,44); in a first holding position the holding element is at least substantially accommodated by the holder and in the second it protrudes from the holding region (19).





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[0001] The invention relates to a retaining element to the arrangement at a wall, in particular a heat insulating wall for a refrigerator door, a refrigerator housing or such a thing, with an outer lining, a heat insulating intermediate layer and a liner, to which retaining elements to the support from shelves, intermediate bottoms or such disposed are.

[0002] With known refrigerators such as refrigerators or such a thing inner containers lining their cooling space are and/or at that, at that its door inside formed liner of retaining elements provided, which are in the case of the inner container formed as in receptacles insertable and to the support support members serving from cool good files and in the case of the door inside paneling as to these formed retainer cans to the support of door shelves. While the support members are more removable to the support of the intermediate bottoms from their putting in position, if they do not take over a temporary supporting function, a decrease is if these current not to the support of the door shelves provided is impossible with, for example the retaining elements formed planned at the door inside in the form of retainer cans by their Mitanformung to the door inside paneling, so that for the door inside paneling as a result of the projected retainer cans a fissured appearance arises in particular. Beyond that represent not only the retainer cans at the door inside paneling but also the receptacles planned at the side walls of the inner container to the introduction of the support members potential, only heavy problem places which can be cleaned, which can bring perhaps also hygiene problems with itself.

[0003] On the basis of this state of the art the invention the object is the basis to avoid a retaining element for a heat insulating wall in accordance with the preamble of Claim 1 on the basis which the disadvantages of the state of the art.

[0004] This object becomes according to the invention by the fact dissolved that the retaining element within a receptacle at least between two by latch means fixed positions relocatable guided is, whereby in a first position the retaining element is received at least of the receptacle as far as possible, while it rises up in its second position for retaining purposes out of the receiving area of the receptacle.

[0005] The retaining elements according to invention open the possibility, this depending upon that, whether they become current support function used to be able to bring into a raised operative position from which they if temporary support or support function do not notice it, back-urged to become to be able, whereby the side walls of the inner container and/or at the door inside paneling an essentially planar-laminar and unzerklüftete surface with an obliging/pleasing appearance develops. Beyond that the cooling space lining liner and the door inside paneling can be cleaned with back-urged retaining elements particularly simple and hygienic.

[0006] A corresponding preferable embodiment of the subject-matter of the invention is provided that the retaining element of a clockwork mechanism applied are, which it pushes after resolution of the rest connection in the first position into the second position.

[0007] Thereby the retaining element automatic becomes particularly goal-safer from its rest position countersunk in the receptacle into its opposite the surface of the liner and/or the door inside paneling projected, raised operating end position brought. An function-until intermediate position of the retaining element due to a faulty operation, is excluded by a such measure on particularly simple way.

[0008] After a next preferable embodiment of the subject-matter of the invention is provided that the retaining element are provided with guide elements, which Gegenführungen planned at the receptacle is able to also cooperate.

[0009] Thereby is assured that the retaining element within the receptacles tilt-free with small energy expenditure more movable are, so that to its movement a clockwork mechanism with relatively small force development is more applicable with small space requirement and thus.

[0010] A particularly targeted and robust guide between the retaining element and the receptacles results, if after a next advantageous embodiment of the subject-matter of the invention provided is that the guide elements at the retaining element and the Gegenführungen at the receptacle in type of a groove and a feather/spring connection cooperate.

[0011] After an other preferable embodiment of the subject-matter of the invention is provided that the receptacle is formed as flat-similar implemented housing, which exhibits a receiving space adapted to the external contour of the retaining element and which is of at its external contour adapted recessed at the liner received.

[0012] The housing-like formation of the receptacle lends latter one over the retaining element corresponding inherent rigidity to the force application and forms thus together with the retaining element a safe and stable supporting system for example for door shelves or intermediate bottoms or such a thing. Beyond that a simple producible only liner which can be equipped with cup-like recesses is and/or by this embodiment. Door inside paneling created, in which the flat-similar implemented housings and the retaining elements in their first position, located therein, can be fastened surface-precisely and thus complete countersunk. If it concerns with this attachment a releasable type of mounting, the flat-like housings

and the retaining elements in the case of loss particularly easy, mounted therein, can be exchanged, also by laymen and thus particularly inexpensive.

[0013] Particularly long-term-stable and form-rigid formed is the latch means, if after a next favourable embodiment of the subject-matter of the invention provided is that the latch means are as abutments and thus cooperative Gegenanschläge performed.

[0014] In accordance with a next preferable embodiment of the subject-matter of the invention is provided that the abutments are on the one hand formed by the free ends of a support ranging, which cooperate there to the led movement of the retaining element into a Kulissenführung to dive in each case and in the first holding position also as Gegenanschläge serving rest positions are able and that the abutments are on the other hand through at the retaining element of disposed projections performed, which push away in the second holding position at the housing.

[0015] By the support of the projections at the housing second is not only, opposite the surface of the liner and/or, the door inside paneling projected position of the retaining element position-accurate achieved, but at the same time also still the force long-term-stable intercepted initiated by the clockwork mechanism, for example in form of a spiral spring, on the retaining element in its driven out second position.

[0016] The Kulissenführung is particularly space-saving trainable, if after an other preferable embodiment of the subject-matter of the invention provided is that the Kulissenführung a similar high-same disposed cardioid formed approximate to that each other opposite sides of the housing is, whose formed Kurvenäste at their transitions form the heart-similar form to each other the rest positions, of which the rest position directed for other rest position with the ends of the support ranging cooperates.

[0017] Particularly easy mountable and in the case of loss dismantlable is the support ranging, if after a next advantageous embodiment of the subject-matter of the invention provided is that the support ranging at the retaining element is releasable set.

[0018] A corresponding last preferable embodiment of the subject-matter of the invention is provided that the housing and the retaining element exhibit an oval external contour, whereby the retaining element with one is at least in sections along its oval external contour longitudinal retaining groove provided.

[0019] By the oval shape of the retaining element are for example a sufficient parallel guide and thus suspension free from play of door shelves inexpensive more attainable.

[0020] The invention is in the subsequent description at the example of a represented cold equipment door simplified in the accompanying drawing explained.

[0021] Show:

Fig. 1 a cold equipment door also at their liner on the basis in recesses inserted housing-similar receptacles supported retaining elements to the support of door shelves, in cross sectional view of the side,

Fig. 2 the cold equipment door in accordance with fig 1 without the door shelves and with the interface between the recesses and the receptacles taking off cover parts,

Fig. 3 the cooler door ausschnittsweise in the area one of the retaining elements with a door shelf in a cross sectional view of the side, enlarged supported to it, opposite fig 1,

Fig. 4 ausschnittsweise in cross sectional view one of the housing-similar receptacles with retaining element, in spacepictorial top view, inserted therein,

Fig. 5 one of the receptacles also in its receiving space disposed in countersunk position represented retaining element, in cross sectional view of the side,

Fig. 6 the receptacle and the retaining element in accordance with fig 5, in cross sectional view from above,

~~top~~ Fig. 7 one of the receptacles also in its receiving space disposed and in printed position represented retaining element, in cross sectional view of the side,

Fig. 8 the receptacle with in its receiving space disposed the element in accordance with fig 7, in cross sectional view from above,

Fig. 9 one of the receptacles also in its receiving space disposed and in raised function position represented retaining element, in cross sectional view of the side and

Fig. 10 the receptacle with in their receiving space of disposed retaining elements, in accordance with fig 9, in cross sectional view from above.

[0022] In accordance with fig 1 a heat insulating formed refrigerator door is 10 shown, which exhibits an outer lining 11, a thermal insulation layer 12 created by Aufschäumen and a liner 13 created by non-cutting moulding of a plastic plate. This is 14 provided at their edges with a circumferential disposed bellows-like formed magnet seal and points during their manufacture procedure by deep drawing into it formed recesses 15 formed in form of an oval to which with itself to it subsequent, in each case at least approximate in the center of the curved portion of the oval-like recesses 15 sealed blind hole photographs 16 attaches. In the recesses 15 at least approximate are to the contour of the recesses 15 adapted housing-similar receptacles 17 inserted, which are provided with central mounting means 18 in form of a Spreiznieten, aligned to their narrower housing side, in each case and which possess a formed receiving space 19 oval in the longitudinal section. This possesses a recess 20, in which circumferential more disposed, oval in the longitudinal section, than abutment 21 serving edge rises up. Furthermore the receiving space is 19 surrounded of lateral walls, by which the parallel are provided to the rectilinear sides of the oval recess of 20 longitudinal walls 22 at their the receiving space 19 directed insides with in each case through a guide groove 24 formed in the parallel distance to each other disposed carry out-like projections 23, which itself over the height of the walls 22 and thus edge-open into the opening-planar of the recess 20 extended. Following the guide groove 24 is to that the recess 20 opposite sides of the walls 22 in each case a retainer 25 with an aperture 26 provided. The free ends of the lateral walls provided with the retainer 25 curved walls 27 follow 22, which together with the lateral walls 22 circumscribes the receiving space 19 oval in the longitudinal section and which curved portions of the oval form. The curved walls 27 are provided at their the receiving space 19 directed inside with one a similar cardioid formed Kulissenführung 28, which edge-open supply slots it possesses 28,1 and 30 flowing at

the edge of the receiving space which at their transitions rest positions form to each other, about which a first rest position rising up into the heart-inner is 31 to a second rest position 32, directed turned away by the heart-inner. From the rest positions the first serves 31 and 32 as abutment and a defined holding position, and in the longitudinal section of a retaining element 33 formed insertable of that the recess 20 opposite opening side into the receiving space 19 in type of an oval tray. This is provided to its guide and to its positioning within the receiving space 19 at its straight bowl walls with guide cams 34, which are able to cooperate to purposes of the positioning and the guide of the retaining element 33 with the guide grooves 24 in type of a groove and a feather/spring connection. The guide cams reciprocally huktrempenartig managing wall sections 35 follow 34, which are essentially disposed at the free edges of bowl of the flat-like retaining element 33 provided and at its straight bowl walls. At its curved bowl walls the retaining element is provided of 33, its edges of bowl free at close range with curved implemented openings 35.1, whereby by the arrangement of the break-through 35.1 exist permanent wall section as yoke 35.2 serves. The wall sections 35 serve 19 as end stops for the limitation of the shifting way within the receiving space along the guide grooves 24 of relocatable led retaining element 33, which is regarding its outside dimensions and 20 adapted regarding its external contour to those the recess and can thus with its bowl soil serving as face the recess 20 pass through. The depressing way of the retaining element 33 is 35 limited by the wall sections serving as end stops, which rest against the abutment 21 of the receiving space 19 and the simultaneous position-proper, raised end position of the retaining element 33 define. The retaining element 33 exhibits formed face a circumferential at close range in its in the floor of its cup shaped shape along its contour disposed retaining groove 36, which carries disposed back opposite the face is. In addition the retaining element 33 on its free edges of bowl directed inside, at its bowl soil a holding peg 37 is up, which is divided by a parallel groove longitudinally to the straight oval sides of the retaining element 33 into two at least approximate same tap parts with kreisegmentartiger from surface. The groove 36 extended itself up to on both sides the spigot 37, at close range of the curved walls of the flat-like retaining element of 33 disposed boundary walls 39. The groove 36 serves 40, whose 38 stored as crank pins serving Stababschnitt 41 is to the guide of the support ranging 40 in the groove for the receptacle of a crankshaft-similar formed support ranging kreiszylinderischen in the cross section and whose 41 portions 42 angled of the Stababschnitt to the situation safety device of the support ranging 40 with the boundary walls 39 cooperates. The angled portions 42 of the crankshaft-like formed support ranging 40 the shaft journals of a crank shall follow formed straight Stababschnitte 43, their free end portions 44 as abutments serve, whereby the end portions 44 when the assembly assembling of the support ranging 40 over the openings 35.1 rise up out of the receiving space of the retaining element 33. The support ranging 40 becomes within the receiving space of the flat-similar formed retaining element 33 on the one hand on the basis detents not shown more near and on the other hand by one than clockwise mechanisms serving compression spring 45 fixed set with one of their free ends at the holding peg 37, which with their other free end bias at a crossbeam, bottom, pushes 46 away, which for this purpose with a holding peg 47 is provided. The crossbeam 46 serves 45 in together with the compression spring for the support of the retaining element 33 within the receiving space 19 preassembled with the support ranging 40, whereby the crossbeam 46 is to purposes of the support at their free ends with one retaining rib each 48 provided, which intervenes in the attachment condition the aperture 26 of the retainer 25.

[0023] When using the retaining element 33 into the receiving space 19 opposite the curved sides of the retaining element 33 managing, 35.2 end portions 44 over the supply slot 28.1 into the Kulissenführung 28 introduced rising up out of its opening become. Within the Kulissenführung 28 are the free end portions 44 along the Kurvenäste 29 and/or. 30 guided, and serve in rest position 31 (see for this fig 5 and fig 6) as retaining notice for against Kraftwirkung compression spring 45 in receiving space 19 back-urged retaining element 33, which is by cooperation of the free end portions 44 maintained defined with the rest position 31 in their first position, 19 received in which the retaining element is at least essentially 33 of the receiving space. In this holding position the straight Stababschnitte 43 at the yoke 35.2 disposed over the opening 35.1 support themselves off.

[0024] As in particular the figs 7 and 8 show, the end portions 44 serving as abutments become 31 brought by a movement of the retaining element 33 in arrow direction in succession of the Kurvenäste 30 outer pure grasp with the rest position, whereby the first holding position of the retaining element is 33 dissolved. If the retaining element becomes 33, after the first holding position became dissolved automatic in arrow direction by the Kurvenast 33 with the printing of the retaining element 33, released, then the retaining element becomes 33 19 pressed on the basis the compression spring 45 from the receiving space, whereby the portion of the retaining element 33 the recess 20 in front-hurrying in pressure direction of the compression spring 45 passes through. Movement retaining element 33 is by cooperation wall sections 35 with abutment 21 limited, whereby the second position of the retaining element 33, in which this raised projects opposite receiving space, defined is (see for this fig 9 and fig 10). The retaining element 33 serves in this position of the support of a door shell 50, which exhibits a subject-specific classroom 51, which of a floor 52 and of integral 52 lateral walls 53 connected with the floor is circumscribed. From the lateral walls 53 those is also in the distance of two immediate recesses 15 disposed retaining openings 54 adjacent in horizontal direction provided the liner 13 directed side wall, whereby the shell 50 is 10 releasable set on the basis of two immediate adjacent disposed retaining elements 33 at the inside of the refrigerator door to each other.

[0025] Retaining elements 33 are thereby on the basis spreitzdornähnlichen mounting means 18, which to purposes of the attachment of the receptacles 17 the extension 16 blind hole-like in the recesses 15 into which introduced are, set releasable at the liner. The circumferential assembly gap resultant between the recess 15 and the receptacle 17 inserted therein and the mounting positions of the receptacle 17 releasable at this set cover 55 covered, which formed oval into the recess 15 in the longitudinal section as and which exhibits an opening 56 adapted to the external contour of the retaining element 33, which the retaining element 33 in its raised position with slight distance to the free edges of the break-through 56 will pass through themselves is able. By the cover 55 set at the receptacle 17 the housing-similar receptacle is 17 up to the retaining element mounted therein 33 however inclusively the circumferential assembly gap covered, whereby with countersunk retaining element 33 at least as far as possible a planar and hygienic surface bottom avoidance of a Zerklüftung of the door inside provided which can be cleaned is in a simple manner.

[0026] The receptacle 17 with the retaining element divided inserted therein and can be used also with corresponding formation of the refrigerating chamber inside paneling with recesses to the introduction of the receptacles 17 also before support of intermediate bottoms, whereby the retaining element would be to be out-arranged 33 to the support the intermediate bottom corresponding.



Claims of EP1030144

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1. Retaining element to the arrangement at a wall, in particular a heat insulating wall of a refrigerator door, a refrigerator housing or such a thing, with an outer lining, a heat insulating intermediate layer and a liner, to which retaining elements to the support from shelves, intermediate bottoms or such disposed are, characterised in that the retaining element (33) within a receptacle (17) at least between two by latch means (21, 35; 31, 44) fixed holding positions relocatable guided is, whereby in a first holding position the retaining element (33) is received at least of the receptacle (17) as far as possible, during it in its second holding position from the receiving area (19) the receptacle rises up.
2. Retaining element according to claim 1, characterised in that the retaining element (33) of a clockwork mechanism (45) applied is, which it pushes after resolution of the rest connection in the first position into the second position.
3. Retaining element according to claim 1 or 2, characterized thus that the retaining element (33) with guide elements (24) is provided, which at the receptacle (17) intended Gegenführungen (34) are able to also cooperate.
4. Retaining element according to claim 3, characterised in that the guide elements (24) at the retaining element (33) and the Gegenführungen (34) at the receptacle (17) in type of a groove and a feather/spring connection cooperate.
5. Retaining element after one of the claims 1 to 4, characterised in that the receptacles (17) as flat-similar implemented housings formed is, a soft receiving space (19), female to the external contour of the retaining element (33) adapted and the retaining element (33), exhibits and which of one at its external contour adapted recess (15) at the liner (13) received is.
6. Retaining element according to claim 5, characterised in that at the receptacle (17) a cover part (55) is determinable, which possesses an opening (56) for the passage of the retaining element (33) and which at least takes the transition off between the recess (15) and the receptacle (17).
7. Retaining element according to claim 1, characterised in that the latch means as abutments (21,31) and thus cooperative Gegenschläge (35,44) performed are.
8. Retaining element according to claim 7, characterised in that the abutments on the one hand by the free ends (44) of a support ranging (40) formed it are which are able in each case to immerse serving rest position (31) to the led movement of the retaining element (33) into a Kulissenführung intended at the receptacle (17) and cooperate there in the first holding position also as Gegenschläge and that the abutments are on the other hand through at the retaining element (of 33) disposed projections (35) performed, which push away in the second holding position at the receptacle (17).
9. Retaining element according to claim 8, characterised in that the Kulissenführung (28) a similar high-same disposed cardioid approximate to that each other opposite sides of the receptacle (17) formed is, whose formed Kurvenäste (29,30) at their transitions form the heart-similar form to each other the rest positions (31,32), of which the two different rest position (32) directed rest position (31) with the ends (44) of the support ranging (40) cooperates.
- ▲ top 10. Retaining element according to claim 8, characterised in that the support ranging (40) at the retaining element (33) releasable set is.
11. Retaining element after one of the claims 1 to 10, characterised in that the receptacle (17) and the retaining element (33) an oval external contour exhibit, whereby the retaining element (33) with one is at least in sections along its oval external contour longitudinal retaining groove (36) provided.